AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A nondestructive inspection apparatus using a guided wave, comprising:

waveform forming means for forming a transmission waveform by employing a reference waveform;

a transmitting element for generating a guided wave within an object under inspection based upon said transmission waveform;

a receiving element for receiving a reflection wave of said guided wave from an inspection region of said object under inspection;

analyzing means for outputting inspection information which is acquired based upon the reception waveform of said reflection wave received by said receiving element; and

display means for displaying thereon said inspection information,

wherein said waveform forming means further comprises: means for calculating reception waveforms of said reflection waves when said reflection waves are received by said receiving element; and means for forming the transmission waves in such a manner that said calculated reception waveforms are sequentially transmitted from such a reception waveform in an order of a degree that reception time is late, wherein said waveform forming means further comprises: means for computing a calculated waveform from said reference waveform which propagates as said guided wave over a total distance between said transmitting element and said inspection region and between said inspection region and said receiving element; and means for forming the transmission waveform by applying time-inversion to said calculated waveform.

2. (Original) A nondestructive inspection apparatus using a guided wave, as claimed in claim 1 wherein:

both said transmitting element and said receiving element correspond to the same element which is employed when said guided wave is generated and when said reflection wave is received.

3-5. (Canceled)

6. (Original) A nondestructive inspection apparatus using a guided wave, as claimed in claim 1 wherein:

said display means comprises: means for displaying thereon said transmission waveform.

7. (Canceled)

8. (Previously Presented) A nondestructive inspection apparatus using a guided wave, as claimed in claim 22 wherein:

said analyzing means comprises: means for extracting a reception wave portion of a time region corresponding to a certain distance of said inspection segment from said reception waveform, and for coupling said extracted reception wave portions to each other so as to form a reception waveform of an entire region of said inspection regions.

9. (Canceled)

10. (Original) A nondestructive inspection apparatus using a guided wave, as claimed in claim 1 wherein:

said object under inspection corresponds to a pipe arrangement; and said nondestructive inspection apparatus further comprises: a scanner for mechanically scanning both said transmitting element and said receiving element along a circumferential direction of said pipe arrangement.

11. (Original) A nondestructive inspection apparatus using a guided wave, as claimed in claim 1 wherein:

said object under inspection corresponds to a pipe arrangement; said analyzing means comprises: an arrangement in which information of an inspection image is formed which is displayed on a plane where said inspection result is expanded along the circumferential direction of said pipe arrangement, and a picture signal of said information is outputted; and said display means comprises: an arrangement for receiving said information so as to display said inspection image.

12. (Currently Amended) A nondestructive inspection method comprising:

a step of calculating reception waveforms when an arbitrary waveform propagates as a guided wave for a predetermined distance;

a step [[means]] for forming a transmission waveform by employing a reference waveform so as to transmit said transmission waveform in an order of a degree that reception time is late;

a step for generating a guided wave within an object under inspection based upon said transmission waveform;

a step for receiving a reflection wave of said guided wave from an inspection region of said object under inspection by a receiving element;

a step for acquiring inspection information which is acquired based upon the reception waveform of said reflection wave received by said receiving element; and

a step for displaying thereon said inspection information, wherein said waveform forming means further comprises: means for computing a calculated waveform from said reference waveform which propagates as said guided wave over a total distance between said transmitting element and said inspection region and between said inspection region and said receiving element; and means for forming the transmission waveform by applying time-inversion to said calculated waveform.

13. (Original) A nondestructive inspection method as claimed in claim 12 wherein:

a relationship between a frequency of said transmission waveform and a thickness of said object under inspection is capable of satisfying such a condition that:

frequency (MHz) × thickness (mm) ≥ 0.5, and also, frequency (MHz) × thickness (mm) ≤ 4.0.

14. (Canceled)

15. (Previously Presented) A nondestructive inspection method as claimed in claim 24 wherein:

a relationship between a frequency of said transmission waveform and a thickness of said object under inspection is capable of satisfying such a condition that:

frequency (MHz) × thickness (mm) ≥ 0.5, and also, frequency (MHz) × thickness (mm) ≤ 4.0.

16. (Previously Presented) A nondestructive inspection method as claimed in claim 24, further comprising:

a step for coupling said extracted reception waveform portions to each other so as to acquire a coupled reception waveform.

17. (Original) A nondestructive inspection method as claimed in claim 16 wherein:

a relationship between a frequency of said transmission waveform and a thickness of said object under inspection is capable of satisfying such a condition that:

frequency (MHz) × thickness (mm) ≥ 0.5, and also, frequency (MHz) × thickness (mm) ≤ 4.0.

18. (Original) A nondestructive inspection method as claimed in claim 16 wherein:

said object under inspection corresponds to a pipe arrangement; and said nondestructive inspection method further comprises:

a step for subdividing the inspection region of said pipe arrangement into a plurality of circumferential segments along a circumferential direction;

a step for acquiring said reception wave every said circumferential segment; and

a step for acquiring said coupled reception waveform every said circumferential segment.

19. (Original) A nondestructive inspection method as claimed in claim 18 wherein:

a relationship between a frequency of said transmission waveform and a thickness of said object under inspection is capable of satisfying such a condition that:

frequency (MHz) × thickness (mm) ≥ 0.5, and also, frequency (MHz) × thickness (mm) ≤ 4.0.

20. (Original) A nondestructive inspection method as claimed in claim 18, further comprising:

a step for displaying the inspection result with employment of said coupled reception waveform acquired every said circumferential segment on a plane expanded view of said pipe arrangement.

21. (Original) A nondestructive inspection method as claimed in claim 20 wherein:

a relationship between a frequency of said transmission waveform and a thickness of said object under inspection is capable of satisfying such a condition that:

frequency (MHz) × thickness (mm) ≥ 0.5, and also, frequency (MHz) × thickness (mm) ≤ 4.0.

22. (Previously Presented) A nondestructive inspection apparatus using a guided wave, comprising:

waveform forming means for forming a transmission waveform by employing a reference waveform;

a transmitting element for generating a guided wave within an object under inspection based upon said transmission waveform;

a receiving element for receiving a reflection wave of said guided wave from an inspection region of said object under inspection;

analyzing means for outputting inspection information which is acquired based upon the reception waveform of said reflection wave received by said receiving element; and

display means for displaying thereon said inspection information, wherein said waveform forming means comprises: means for forming at least one transmission waveform with respect to each of inspection segments, while the inspection region of said object under inspection is subdivided into a plurality of said inspection segments along a propagation direction of said guided wave.

23. (Previously Presented) A nondestructive inspection apparatus using a guided wave, comprising:

waveform forming means for forming a transmission waveform by employing a reference waveform;

a transmitting element for generating a guided wave within an object under inspection based upon said transmission waveform;

a receiving element for receiving a reflection wave of said guided wave from an inspection region of said object under inspection;

analyzing means for outputting inspection information which is acquired based upon the reception waveform of said reflection wave received by said receiving element; and

display means for displaying thereon said inspection information,

wherein said waveform forming means further comprises: means for calculating reception waveforms of said reflection waves when said reflection waves are received by said receiving element; and means for forming the transmission waves in such a manner that said calculated reception waveforms are sequentially transmitted from such a reception waveform in an order of a degree that reception time is late, and

wherein said object under inspection corresponds to a pipe arrangement; a plurality of both said transmitting element and said receiving element and wherein said receiving element is arranged around said pipe arrangement in a ring shape; and said nondestructive inspection apparatus further comprises: element switching means for switching connections made between said transmitting elements and said receiving elements with respect to both said guided wave transmitting means and said guided wave receiving means.

24. (Currently Amended) A nondestructive inspection method comprising:

a step for forming a transmission waveform by employing a reference waveform;

a step for generating a guided wave within an object under inspection based upon said transmission waveform;

a step for receiving a reflection wave of said guided wave from an inspection region of said object under inspection by a receiving element;

a step for acquiring inspection information which is acquired based upon the reception waveform of said reflection wave received by said receiving element;

a step for displaying thereon said inspection information;

a step for subdividing the inspection region of said object under inspection into a plurality of inspection segments along a propagation direction of said guided wave;

a step for forming said transmission waveforms every said inspection segment by setting said inspection segments as the inspection region, and for allocating at least one [[of]] transmission waveform with respect to at least one of said inspection segments;

a step for receiving a reflection waveform from every said inspection segment by employing said allocated transmission wave; and

a step for extracting a reception waveform portion reflected from the position corresponding to said inspection segment from said received reflection wave.